

CLAIMS

- 1           1.     A method of controlling the drilling of wells under pressure,  
2     comprising the following steps:
  - 3           a)     providing a principal drill string in a principal wellbore;
  - 4           b)     providing at least one concentric casing string surrounding at  
5     least a portion of the principal drill string in the principal wellbore;
  - 6           c)     pumping a controlled volume of fluid down the at least one  
7     concentric casing string and returning the fluid up a common return  
8     annulus in the principal wellbore, so that the friction caused by additional  
9     fluid flow up the return annulus is greater than the friction caused by the fluid  
10    flow from the principal drill string to frictionally control the well .
- 1           2.     The method in claim 1, wherein there may be included a  
2     plurality of concentric casing strings.
- 1           3.     The method in claim 2, wherein the fluid flowing down the  
2     plurality of concentric casing strings and returning up the common return  
3     annulus defines a frictional component within the system which restricts the  
4     return fluid flow to control the well.
- 1           4.     A method of drilling oil and gas wells under pressure, utilizing  
2     hydraulic frictional controlled drilling, comprising the steps of:
  - 3           a.     providing at least one concentric casing string to define an  
4     plurality of annulus;
  - 5           b.     injecting fluid down some the annulus;
  - 6           c.     returning the fluid up at least one return annulus so that the  
7     return flow creates adequate hydraulic friction within the annulus to control  
8     the return flow within the well.
- 1           5.     The method in claim 4, wherein the oil and gas well may be a  
2     straight, directional or multilateral well.

( ) ( )

BEST AVAILABLE COPY

1           6.     A system for controlling fluid flow within an oil and gas well  
2 under pressure, which comprises:

- 3           a.     a first drilling string defining a first annulus therein;
- 4           b.     a plurality of casings positioned around the drill string to define  
5 a plurality of annuli therebetween;
- 6           c.     fluid flowing down some of the plurality of annuli and returning  
7 up at least one common return annulus, for defining a frictional component  
8 within the system to restrict the return fluid flow sufficiently to control the  
9 well.

1           7.     The system in claim 6, wherein the oil and gas well may be a  
2 straight, directional or multilateral well.